REMARKS/ARGUMENTS

Within the Office Action mailed March 2, 2006, claims 1-10 and 23-32 are rejected under 35 U.S.C. § 103(a). By way of the above amendments, claims 27 and 32 have been amended. Claims 11-22 were previously withdrawn. Accordingly, claims 1-10 and 23-32 are pending.

Rejections under 35 U.S.C. § 102(e)

Within the Office Action, claims 1-5, 8-10, 23-25, and 27-32 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,981,055 to Ahuja et al. (hereinafter "Ahuja"). The Applicants respectfully traverse these rejections.

Claims 1-5, 8-10, and 23-25

The present invention is directed to routing data over networks by selecting routes containing Service Provider Access Links (SPALs). The routes pass from an originating node to a destination corresponding to a prefix. Performance scores are determined for each route associated with a distinct SPAL. By determining a current SPAL, embodiments of the present invention are able to determine when a route update request is generated by comparing the performance scores of alternative SPAL routes to that of the current SPAL. (Specification, page 27, lines 4-8). When a performance score for an alternative SPAL is superior to the performance for the current SPAL, a route update request is provided to a priority queue. If the priority queue determines that the route update request is to be accepted, the alternate SPAL associated with the route request update is selected for routing data to the destination.

Ahuja is directed to a routing system including a performance monitoring and inference component 102, a routing optimization component 104, and a BGP bridge component 106. The performance monitoring and inference component 102 measures the performance of specific paths available to a set of subnetworks and generates a table of each type of performance measured or inferred for each available path to each destination (Ahuja, col. 5, lines 6-15). The routing optimization component 104 applies a cost function to the table to determine a low cost route from source to destination (Ahuja, col. 5, lines 16-36). The BGP bridge component 106 communicates the low cost route to the routers in the network to route traffic according to the determined low cost route.

Performance measurements made by the performance monitoring and inference

component 102 are used to generate performance scores from a source to each destination for each available path. In other words, for a given source and a given destination, a performance measurement is generated for each different routing path between the source and the destination. In most applications, many nodes exist between the source and the destination. As such, many different paths exists, where a first path may include completely different legs (a path from one node to a neighboring node) than a second path, or the first path may only differ by one or two legs from a third path. In this second case, many of the legs in the different paths may be the same, and as such, any leg included in more than one different path is associated with more than one associated performance measurement (one for the first path and one for the third path). When such a leg is a SPAL, more than one performance measurement would be associated with the SPAL.

Claim 1 is directed to a method of routing a data flow traversing one or more routers in an internetwork. The one or more routers are coupled to a plurality of service provider access links. The method comprises determining a prefix for the data flow and calculating a plurality of performance scores for the plurality of service provider access links. Each of the plurality of performance scores indicates a performance of a route from a router of the one or more routers to the prefix <u>via a distinct service provider access link</u> from the plurality of service provider access links. The method further comprises detecting a current service provider access link for the prefix. The current service provider access link corresponds to a current route to the prefix specified by a routing protocol. The current service provider access link has a performance score from the plurality of service provider access links. The method further comprises selecting a new service provider access link from the plurality of service provider access links for routing the data flow to the prefix. The new server provider access link has a performance score from the plurality of performance scores superior to the performance score for the current service provider access link.

Claim 1 is allowable over Ahuja. As discussed above, Ahuja teaches determining a performance measurement for each available path between a source and a destination. Each path may include overlapping portions, such as a service provider access link (SPAL). As such, each performance measurement does not indicate a distinct service provider access link, as claimed. For at least these reasons, claim 1 is allowable over the teachings of Ahuja.

Claims 2-5, 8-10, 23-25, and 30-31 all depend on claim 1 and accordingly are all allowable as depending on an allowable base claim.

Claims 27-32

The priority queue of the present invention accepts route update requests based on many different factors, such as urgency and/or a flapping rate. For example, the most urgent requests may be associated with loss of coverage or link failure and require immediate implementation. Less urgent requests may be associated with various performance levels and are implemented or rejected based on defined objectives. Advantageously, the present invention is also able to minimize the flap rate when determining whether to select an alternate SPAL (Specification, page 29, lines 7-25). In other words, slight and constant changes in performance scores do not necessarily result in constant switching (flapping) between SPALs, which can adversely affect network traffic. In order to avoid swamping routers with route updates, in some embodiments of the present invention, the maximum rate of update permitted is offered as, for example, a control.

Ahuja teaches various methods for determining the "costs" associated with each route. For example, an inference method is used to determine the latency from a source to a destination by measuring a latency of a first path and then inferring the latency of a second path using related characteristics. (Ahuja, Figure 7 and related description). However, Ahuja does not teach specific implementation details related to a determined low cost route. Ahuja provides a general description of the BGP bridge component 106. In particular, Ahuja teaches that the BGP bridge component 106 performs a peering function with neighboring Autonomous Systems (AS) and with the routing optimization component 104 (Ahuja, col. 17, lines 4-38). Ahuja also teaches the BGP bridge component 106 provides the determined route path to the routers (Ahuja, col. 5, lines 37-41). However, Ahuja does not teach a methodology for prioritizing route updates to the route path, nor does Ahuja teach a methodology to minimize excessive route changes, such as due to flapping.

Claim 27 is directed to a method of routing from a source node to a group of destination nodes having a common prefix. The method comprises generating a plurality of performance scores for a plurality of routes from the source node to the destination nodes, each performance score corresponding to an access link from one or more access links, determining a superior performance score from the plurality of performance scores, <u>implementing a route update request according to a priority queue, wherein the route update request corresponds to the superior performance score, further wherein the priority queue prioritizes received route update requests</u>

according to urgency and implements the route update request according to a frequency of a previously implemented route update request, and configuring a router to select an access link corresponding to the route update request. As discussed above, Ahuja does not teach a methodology for prioritizing route updates to the route path, nor does Ahuja teach a methodology to minimize excessive route changes, such as due to flapping. For at least these reasons, claim 27 is allowable over Ahuja.

Claims 28-29 depends on claim 27 and accordingly is also allowable as depending on an allowable base claim.

Claim 32 is directed to a method of routing from a source node to a group of destination nodes having a common prefix. The method includes generating a plurality of performance scores for a plurality of routes from the source node to the destination nodes, each performance score corresponding to an access link from one or more access links, and determining a superior performance score from the plurality of performance scores. The method also includes implementing a route update request according to a priority queue, wherein the route update request corresponds to the superior performance score, further wherein the priority queue prioritizes received route update requests according to urgency and implements the route update request according to a frequency of a previously implemented route update request. As discussed above, Ahuja does not teach a methodology for prioritizing route updates to the route path, nor does Ahuja teach a methodology to minimize excessive route changes, such as due to flapping. For at least these reasons, claim 32 is allowable over Ahuja.

Rejections under 35 U.S.C. § 103(a)

Within the Office Action, claims 6, 7, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ahuja in view U.S. Patent No. 6,426,955 to Gossett Dalton, Jr. et al. The Applicants respectfully traverse these rejections.

As described above, claim 1 is allowable. Claims 6, 7, and 26 all depend on claim 1. Accordingly, claims 6, 7, and 26 are also all allowable as depending on an allowable base claim.

CONCLUSION

For the reasons given above, the Applicants respectfully submit that claims 1-10 and 23-32 are in condition for allowance, and allowance at an early date would be appreciated. If the Examiner has any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 so that any outstanding issues can be quickly and efficiently resolved.

Respectfully submitted,
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Dated: 5-31-06

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CERTIFICATE OF MAILING (37 CFR§ 1.8(a))

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